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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,673	04/16/2004	Hiroshi Endo	Q81050	8654

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EXAMINER	
CHEN, CHIA WEI A	

ART UNIT	PAPER NUMBER
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/825,673	ENDO ET AL.	
	Examiner	Art Unit	
	CHIA-WEI A. CHEN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The objection to the specification is withdrawn in light of the amendments.

Response to Arguments

2. Applicant's arguments filed 3/21/2008 have been fully considered but they are not persuasive.

Applicant argues with respect to claims 4, 5, and 12 that Nomura in view of Nakamura does not disclose or suggest the shutter being moveable integrally with another retractable element.

However, reading the claims in the broadest sense, Nakamura teaches a light interrupting ring 24 (light quantity controlling member) attached integrally with a retractable lens group 16 (retractable element), see col. 9, lines 28-34 and Fig. 8. Nakamura further discloses that “the construction may be varied to have the light interrupting member FS attached to another component such as the movable lens support barrel or the switching ring." (See col. 9, lines 31-34.) Although Nakamura does not specifically disclose that the light interrupting member may be attached to other lens groups, a person having ordinary skill in the art would have understood that it is possible to do so.

The rejections for dependent claims 6-10, 13, and 14 are sustained in light of the sustained rejections for independent claims 4, 5, and 12 above.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 4, 5, 8-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 4,887,107) in view of Nomura et al. (US 6,978,089 B2).

As to claim 4, Nakamura teaches in figure 2, a camera that captures object light and generates an image signal, comprising:

- a taking lens (lens assembly 3) having a variable focal length and comprising three or more lens groups (lens groups 8, 15, and 16) including a front lens group, which is disposed forward along an optical axis (col. 4, lines 29-33);
- a lens barrel (6, 7) that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended (col. 4, lines 25-28); and
- wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group (16) into a front lens group side space and retracts a second lens group (15) into a recess section,

which is defined by the wall in a space at the side of the solid-state image pickup device (Figs. 12, 13), and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis (col. 4, lines 29-33), the first lens group being one of the three or more lens groups constituting the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group (Figs. 2A, 2B, 2C, col. 4, lines 48-55);

- a first lens group holding frame (19 of Nakamura et al.) that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed (col. 5, lines 20-29 of Nakamura et al.);
- a second lens group holding frame (21 of Nakamura et al.) that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second lens group into the recess section when the lens barrel is collapsed (col. 5, lines 38-47 of Nakamura et al.);
- a light quantity controlling member (light interrupting ring 24) that is housed in the lens barrel, moves integrally with the first lens group along the optical axis of the

taking lens and controls the quantity of object light passing through the taking lens;

but does not teach:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;
- a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
- a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis;
- wherein the first lens group holding frame retracts the light quantity controlling member integrally with the first lens group into the front lens group side space when the lens barrel is collapsed and advances the light quantity controlling member integrally with the first lens group onto the optical axis when the lens barrel is extended.

Nomura teaches:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;
- a first lens group guiding frame (20 of Nomura et al.) that moves along the optical axis and positions the first lens group along the optical axis (col. 6, lines 41-47 of Nomura et al.);

- a second lens group guiding frame (22 of Nomura et al.) that moves along the optical axis and positions the second lens group along the optical axis (col. 7, lines 29-34 of Nomura et al.);
- wherein the first lens group holding frame retracts the light quantity controlling member integrally with the first lens group into the front lens group side space when the lens barrel is collapsed and advances the light quantity controlling member integrally with the first lens group onto the optical axis when the lens barrel is extended (col. 11, lines 49-57 of Nomura et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the solid-state image pickup device of Nomura et al. with the camera of Nakamura et al. in order to create a thinner and more compact camera by replacing the film and film handling equipment in a film camera.

As to claim 5, Nakamura teaches in figure 2, a camera that captures object light and generates an image signal, comprising:

- a taking lens (lens assembly 3) having a variable focal length and comprising three or more lens groups (lens groups 8, 15, and 16) including a front lens group, which is disposed forward along an optical axis (col. 4, lines 29-33);
- a lens barrel (6, 7) that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a

wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended (col. 4, lines 25-28); and

- wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group (16) into a front lens group side space and retracts a second lens group (15) into a recess section, which is defined by the wall in a space at the side of the solid-state image pickup device (Figs. 12, 13), and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis (col. 4, lines 29-33), the first lens group being one of the three or more lens groups constituting the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group (Figs. 2A, 2B, 2C, col. 4, lines 48-55);
- a first lens group holding frame (19 of Nakamura et al.) that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed (col. 5, lines 20-29 of Nakamura et al.);
- a second lens group holding frame (21 of Nakamura et al.) that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second

lens group into the recess section when the lens barrel is collapsed (col. 5, lines 38-47 of Nakamura et al.);

- a light quantity controlling member (light interrupting ring 24) that is housed in the lens barrel, moves integrally with the second lens group along the optical axis of the taking lens and controls the quantity of object light passing through the taking lens;
- wherein the second lens group holding frame retracts the light quantity controlling member integrally with the second lens group into the recess section when the lens barrel is collapsed and advances the light quantity controlling member integrally with the second lens group onto the optical axis when the lens barrel is extended (As seen in figure 8, the second lens group is positioned in the optical path. In order to expose the film to light, there must be a light quantity controlling member situated with the second lens group to control the exposure of the film; col. 8, line 66-col. 9, line 14, Fig. 8 of Nakamura et al.);

but does not teach:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;
- a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
- a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis;

Nomura teaches:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;
- a first lens group guiding frame (20 of Nomura et al.) that moves along the optical axis and positions the first lens group along the optical axis (col. 6, lines 41-47 of Nomura et al.);
- a second lens group guiding frame (22 of Nomura et al.) that moves along the optical axis and positions the second lens group along the optical axis (col. 7, lines 29-34 of Nomura et al.).

As to claim 12, Nakamura teaches in figure 2, a camera that captures object light and generates an image signal, comprising:

- a taking lens (lens assembly 3) having a variable focal length and comprising three or more lens groups (lens groups 8, 15, and 16) including a front lens group, which is disposed forward along an optical axis (col. 4, lines 29-33);
- a lens barrel (6, 7) that has an inner space for housing the taking lens and is capable of being extended or collapsed, the inner space having an opening for the front lens group to see the outside on the front thereof and being defined by a wall at the rear thereof, and the focal length being adjusted when the lens barrel is extended (col. 4, lines 25-28); and

- wherein the lens barrel has a lens group retraction/advancement mechanism which, when the lens barrel is collapsed, retracts a first lens group (16) into a front lens group side space and retracts a second lens group (15) into a recess section, which is defined by the wall in a space at the side of the solid-state image pickup device (Figs. 12, 13), and, when the lens barrel is extended, advances both the first lens group and the second lens group onto the optical axis (col. 4, lines 29-33), the first lens group being one of the three or more lens groups constituting the taking lens which is other than the front lens group, and the second lens group being one other than the front lens group and the first lens group (Figs. 2A, 2B, 2C, col. 4, lines 48-55);
- a first lens group holding frame (19 of Nakamura et al.) that holds the first lens group, is pivotally supported on the first lens group guiding frame, rotates the first lens group to bring the first lens group onto the optical axis when the lens barrel is extended and rotates the first lens group to bring the first lens group into the front lens group side space when the lens barrel is collapsed (col. 5, lines 20-29 of Nakamura et al.);
- a second lens group holding frame (21 of Nakamura et al.) that holds the second lens group, is pivotally supported on the second lens group guiding frame, rotates the second lens group to bring the second lens group onto the optical axis when the lens barrel is extended and rotates the second lens group to bring the second lens group into the recess section when the lens barrel is collapsed (col. 5, lines 38-47 of Nakamura et al.);

- a first light quantity controlling member (light interrupting ring 24) that is housed in the lens barrel, moves integrally with the first lens group along the optical axis of the taking lens and controls the quantity of object light passing through the taking lens;
- a second light quantity controlling member (light interrupting ring 24) that moves integrally with the second lens group along the optical axis and controls the quantity of object light passing through the taking lens;
- wherein, when the lens barrel is collapsed, the first lens group holding frame retracts the first light quantity controlling member integrally with the first lens group into the front lens group side space, and the second lens group holding frame retracts the second light quantity controlling member integrally with the second lens group into the recess section, and, when the lens barrel is extended, the first lens group holding frame advances the first light quantity controlling member integrally with the first lens group onto the optical axis of the taking lens, and the second lens group holding frame advances the second light quantity controlling member integrally with the second lens group onto the optical axis (col. 11, lines 49-57, col. 8, line 66-col. 9, line 14, Fig. 8 of Nakamura et al.).

but does not teach:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;

- a first lens group guiding frame that moves along the optical axis and positions the first lens group along the optical axis;
- a second lens group guiding frame that moves along the optical axis and positions the second lens group along the optical axis;
- wherein the first lens group holding frame retracts the light quantity controlling member integrally with the first lens group into the front lens group side space when the lens barrel is collapsed and advances the light quantity controlling member integrally with the first lens group onto the optical axis when the lens barrel is extended.

Nomura teaches:

- a digital camera and a solid-state image pickup device that receives object light focused by the taking lens and generates an image signal, the solid-state image pickup device being supported on the wall;
- a first lens group guiding frame (20 of Nomura et al.) that moves along the optical axis and positions the first lens group along the optical axis (col. 6, lines 41-47 of Nomura et al.);
- a second lens group guiding frame (22 of Nomura et al.) that moves along the optical axis and positions the second lens group along the optical axis (col. 7, lines 29-34 of Nomura et al.);
- wherein the first lens group holding frame retracts the light quantity controlling member integrally with the first lens group into the front lens group side space when the lens barrel is collapsed and advances the light quantity controlling

member integrally with the first lens group onto the optical axis when the lens barrel is extended (col. 11, lines 49-57 of Nomura et al.).

As to claim 8, Nakamura et al. in view of Nomura et al. teaches the digital camera according to claim 4, wherein the light quantity controlling member is a diaphragm member (diaphragm shutter S of Nomura et al.) that controls the aperture to control the quantity of object light passing through the taking lens (col. 5, lines 4-6 of Nomura et al.).

As to claim 9, the digital camera according to claim 5, wherein the light quantity controlling member is a diaphragm member (diaphragm shutter S of Nomura et al.) that controls the aperture to control the quantity of object light passing through the taking lens (col. 5, lines 4-6 of Nomura et al.).

As to claim 10, Nakamura et al. in view of Nomura et al. teaches the digital camera according to claim 4, wherein the light quantity controlling member is a shutter member (diaphragm shutter S of Nomura et al.) that controls the shutter speed to control the quantity of object light passing through the taking lens (col. 5, lines 4-6 of Nomura et al.).

As to claim 11, Nakamura et al. in view of Nomura et al. teaches the digital camera according to claim 5, wherein the light quantity controlling member is a shutter member

(diaphragm shutter S of Nomura et al.) that controls the shutter speed to control the quantity of object light passing through the taking lens (col. 5, lines 4-6 of Nomura et al.).

As to claim 14, Nakamura et al. in view of Nomura et al. teaches the digital camera according to claim 12, wherein at least one of the first and second light quantity controlling members is a diaphragm member (diaphragm shutter S of Nomura et al.) that controls the aperture to control the quantity of object light passing through the taking lens, and the other of the first and second light quantity controlling members is a shutter member (diaphragm shutter S of Nomura et al.) that controls the shutter speed to control the quantity of object light passing through the taking lens (the diaphragm shutter of Nomura et al. performs the functions of controlling the quantity of object light and controlling the shutter speed, and according Nakamura et al., light quantity controlling members may be situated on both the first and second auxiliary lens components 15 and 16 of Nakamura et al.).

5. Claims 6, 7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Nomura et al. as applied to claim 4, 5, and 13 above, and further in view of Bradshaw et al. (US 4,969,719).

As to claim 6, Nakamura et al. in view of Nomura et al. teaches the digital camera according to claim 4, but does not teach wherein the light quantity controlling member comprises an electrooptic element.

Bradshaw et al. teaches wherein the light quantity controlling member comprises an electrooptic element (liquid crystal cell 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the electrooptical element of Bradshaw et al. to provide a fast shutter with low minimum light transmission by the smectic ferro electro property. (See col. 2, lines 18-23 of Bradshaw et al.)

As to claim 7, Bradshaw et al. teaches wherein the light quantity controlling member comprises an electrooptic element (liquid crystal cell 1).

As to claim 13, Bradshaw et al. teaches wherein the light quantity controlling member comprises an electrooptic element (liquid crystal cell 1).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHIA-WEI A. CHEN whose telephone number is (571)270-1707. The examiner can normally be reached on Monday - Friday, 7:30 - 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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05/20/2008

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